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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* YOUNGLOK KIM and ARIELA ZEIRA

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Appeal 2009-006389  
Application 10/071,917  
Technology Center 2400

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Decided: November 24, 2009

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Before JOSEPH F. RUGGIERO, KARL D. EASTHOM, and  
ELENI MANTIS MERCADER, *Administrative Patent Judges*.

RUGGIERO, *Administrative Patent Judge*.

DECISION ON APPEAL

## STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134 from the Final Rejection of claims 1-4, 13, and 14, which are all of the pending claims. An oral hearing was conducted on this appeal on November 3, 2009.<sup>1</sup> We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

Rather than reiterate the arguments of Appellants and the Examiner, reference is made to the Brief (filed February 19, 2008) and the Answer (dated May 27, 2008) for the respective details. Only those arguments actually made by Appellants have been considered in this decision. Arguments which Appellants could have made but chose not to make in the Brief have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

### *Appellants' Invention*

Appellants' invention relates to the transmission of a data field of symbols in which a first data field of symbols is generated and encoded to produce a second data field having complex conjugates of the symbols of the first data field. The first and second data fields are spread using respective first and second channelization codes which are uniquely associated with first and second antennas. An RF signal including the first and second

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<sup>1</sup> During the same hearing session on November 3, 2009, oral hearings were conducted on related Appeal Nos. 2009-006365 (S.N. 10/071,903), 2009-006410 (S.N. 10/077,076), 2009-006660 (S.N. 10/077,565), 2009-006704 (S.N. 10/079,107), 2009-006837 (S.N. 09/999,287), and 2009-007629 (S.N. 10/107,465).

spread data fields is then transmitted over the first and second antennas.

(See generally Spec. ¶ [0013]).

Claim 1 is illustrative of the invention and reads as follows:

1. A method for a user equipment (UE) to transmit a data field of symbols comprising the steps of:

generating a first data field of symbols;

encoding said first data field producing a second data field having complex conjugates of the symbols of said first data field;

spreading said first and second data fields, wherein said first data field is spread using a first channelization code that is uniquely associated with a first antenna and said second data field is spread using a second channelization code that is uniquely associated with a second antenna; and

transmitting an RF signal including said first and second spread data fields over the first and second antennas.

### *The Examiner's Rejection*

The Examiner's Answer cites the following prior art references:

Dabak (Dabak '473)	US 6,594,473 B1	Jul. 15, 2003 (filed May 24, 2000)
Akiba	US 6,721,300 B1	Apr. 13, 2004 (filed Aug. 28, 2000)
Dabak (Dabak '260)	US 6,775,260 B1	Aug. 10, 2004 (filed Feb. 25, 2000)
Ylitalo	US 6,788,661 B1	Sep. 7, 2004 (filed Nov. 12, 1999)

Claims 1-4, 13, and 14 stand rejected on the ground of non-statutory obviousness type double patenting over claims 1-4, 13, and 14 of both copending US Application Serial Nos. 10/071,903 and 10/079,107.

Claim 1 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Dabak ‘260 in view of Ylitalo.

Claims 2-4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Dabak ‘260 in view of Ylitalo and Akiba.

Claim 13 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Dabak ‘473.<sup>2</sup>

Claim 14 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Dabak ‘473 in view of Akiba.

### ISSUES

The pivotal issues before us are whether Appellants have demonstrated that the Examiner erred in determining:

- a) Ylitalo discloses the spreading of first and second data fields of symbols using first and second channelization codes that are uniquely associated with respective first and second transmission antennas, and
- b) if so, the obviousness to the ordinarily skilled artisan of combining the transmit antenna diversity teachings of Dabak ‘260 with Ylitalo, and
- c) the obviousness to the ordinarily skilled artisan of reducing the number of transmitting antennas in Dabak ‘473 from four to two.

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<sup>2</sup> Although the heading sentence (Ans. 7) states the rejection is based on 35 U.S.C. § 103(a), the Examiner uses the term “anticipated” in this sentence. The detailed analysis of the rejection (Ans. 7-8), however, properly supplies an obviousness rationale in support of the stated 35 U.S.C. § 103(a) rejection.

## FINDINGS OF FACT

The record supports the following relevant findings of fact (FF) by a preponderance of the evidence:

1. Dabak '260 discloses (Fig. 1; col. 3, l. 52-col. 4, l. 22) a multiple antenna transmitting system in which a first symbol data field is generated at 106 and a space time transmit diversity (STTD) encoder 110 produces the complex conjugate of the first symbol data field to produce a second symbol data field.
2. Dabak '260 also discloses (Fig. 1; col. 3, l. 67-col. 4, ll. 1-22) that the first and second symbol data fields are transmitted over antennas ANT1 112 and ANT2 114.
3. Dabak '260 further discloses (Fig. 2; col. 4, ll. 23-52) that the same channelization code  $C^1$  is applied to data field symbols  $D_1^1$  and  $D_2^1$ .
4. Ylitalo discloses (Figs. 4, 5; col. 4, ll. 56-58; col. 5, ll. 37-40) a beam coding system in which different spread spectrum channelization codes are applied to first and second symbol data fields through multipliers 12 and 14.
5. Ylitalo further discloses (col. 4, ll. 51-59; col. 5, ll. 27-57) transmitting, from antenna 16, the beam with a first channelization code that has been applied to a symbol data field through multiplier 12, and transmitting, from antenna 18, the beam with a second different channelization code that has been applied to a second symbol data field through multiplier 14.
6. Dabak '473 discloses a multiple antenna transmitting system including the spreading of a symbol data field  $S_1$  using a first weighting factor channelization code  $W_1$  and producing a spread data field  $W_1 S_1$ . The

same symbol data field  $S_1$  is spread using a second weighting factor channelization code  $W_2$  and producing a second spread data field  $W_2S_1$ . (Fig. 4; col. 8, l. 9-col. 9, l. 29).

7. Dabak '473 further discloses (Fig. 4; col. 9, ll. 10-29) that the spread data field  $W_1S_1$  is applied to first antenna AT1 while its complex conjugate  $W_1S_1^*$  is applied to second antenna AT2, and the spread data field  $W_2S_1$  is applied to third antenna AT3 while its complex conjugate  $W_2S_1^*$  is applied to fourth antenna AT4.

## PRINCIPLES OF LAW

### *Obviousness*

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073 (Fed. Cir. 1988). In so doing, the Examiner must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966) (stating that 35 U.S.C. § 103 leads to three basic factual inquiries: the scope and content of the prior art, the differences between the prior art and the claims at issue, and the level of ordinary skill in the art). “[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability.” *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). Furthermore,

“there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness” . . . [H]owever, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.

*KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

*Nonstatutory Obviousness-Type Double Patenting*

A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). *See, e.g., In re Berg*, 140 F.3d 1428 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887 (Fed. Cir. 1985). In determining whether a nonstatutory basis exists for a double patenting rejection, the first question to be asked is: does any claim in the application define an invention that is anticipated by, or is merely an obvious variation of, an invention claimed in the patent? If the answer is yes, then an “obviousness-type” nonstatutory double patenting rejection may be appropriate. Obviousness-type double patenting requires rejection of an application claim when the claimed subject matter is not patentably distinct from the subject matter claimed in a commonly owned patent, or a non-commonly owned patent but subject to a joint research agreement as set forth in 35 U.S.C. § 103(c)(2) and (3), when the issuance of a second patent would provide unjustified extension of the term of the right to exclude granted by a patent. *See Eli Lilly & Co. v. Barr Labs., Inc.*, 251 F.3d 955 (Fed. Cir. 2001).



## ANALYSIS

*I. The 35 U.S.C. § 103(a) rejection of independent claim 1 based on the combination of Dabak '260 and Ylitalo.*

With respect to the Examiner's obviousness rejection of independent claim 1, Appellants' arguments in response assert a failure by the Examiner to establish a prima facie case of obviousness since all of the claimed limitations are not taught or suggested by the applied prior art references. Appellants' arguments (App. Br. 6-7) do not attack the Examiner's basis for combining Dabak '260 and Ylitalo, but, rather, focus on the alleged deficiency of either reference in disclosing the spreading of first and second data fields of symbols using first and second channelization codes that are uniquely associated with respective first and second transmission antennas.

We do not find Appellants' arguments to be persuasive of any error in the Examiner's stated position. While Appellants contend (App. Br. 6-7) that, in contrast to the claimed invention, Dabak '260 discloses (FF 3) that the *same* channelization code  $C^1$  is applied to data field symbols  $D_1^1$  and  $D_2^1$ , it is apparent from the Examiner's analysis (Ans. 6) that Ylitalo is being relied upon for a teaching (FF 4) of applying different channelization codes to first and second symbol data fields through multipliers 12 and 14. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986); *In re Keller*, 642 F.2d 413, 426 (CCPA 1981).

We further agree with the Examiner (Ans. 6, 10) that Ylitalo provides a specific disclosure (FF 5) of transmitting, from antenna 16, a beam with a first channelization code that has been applied to a symbol data field through multiplier 12, and transmitting, from antenna 18, a beam with a second

different channelization code that has been applied to a second symbol data field through multiplier 14. We fail to see, and there are no convincing arguments presented from Appellants, why the respective first and second channelization codes in Ylitalo would not be considered to be uniquely associated with the respective first and second beam transmitting antennas 16 and 18 as claimed.

Lastly, we also find, and there are no convincing arguments to the contrary from Appellants, that the Examiner (Ans. 6, 10) has set forth an valid articulated line of reasoning establishing the obviousness to the ordinarily skilled artisan of applying the known uniquely associated channelization code/antenna teachings of Ylitalo to improve the known transmitter system of Dabak '260 in accordance with the previously discussed *KSR* standards.

For the above reasons, since it is our opinion that the Examiner has established a prima facie case of obviousness which has not been overcome by any convincing arguments from Appellants, the Examiner's 35 U.S.C. § 103(a) rejection of independent claim 1 is sustained.

*II. The 35 U.S.C. § 103(a) rejection of dependent claims 2-4 based on the combination of Dabak '260, Ylitalo, and Akiba.*

This rejection is sustained as well. We find no error in the Examiner's application (Ans. 7, 10) of the scrambling code teachings of Akiba (Fig. 1; col. 4, ll. 11-14) to the combination of Dabak '260 and Ylitalo. Appellants' arguments (App. Br. 7) rely on those made with respect to independent claim 1, which arguments we found to be unpersuasive as discussed *supra*.

*III. The 35 U.S.C. § 103(a) rejection of independent claim 13 based on the combination of Dabak '473.*

We also sustain the Examiner's obviousness rejection of independent claim 13. The Examiner has applied the teachings of Dabak '473 to address the requirements of claim 13 which, unlike previously discussed claim 1 in which different channelization codes are applied to *different* symbol data fields, is directed to the application of different spreading channelization codes to the *same* symbol data field.

As explained by the Examiner (Ans. 7, 8, 11), Dabak '473 discloses the spreading of a symbol data field  $S_1$  using a first weighting factor channelization code  $W_1$  and producing a spread data field  $W_1S_1$ . As further interpreted by the Examiner (*id.*), Dabak '473 discloses the spreading of the same symbol data field  $S_1$  using a second weighting factor channelization code  $W_2$  and producing a second spread data field  $W_2S_1$ .<sup>3</sup> (FF 6).

The Examiner correctly recognizes that Dabak '473 discloses (FF 7) that the spread data field  $W_1S_1$  is applied to first antenna AT1 while its complex conjugate  $W_1S_1^*$  is applied to second antenna AT2, and the spread data field  $W_2S_1$  is applied to third antenna AT3 while its complex conjugate  $W_2S_1^*$  is applied to fourth antenna AT4. According to the Examiner (Ans. 8), since the same channelization code  $W_1$  is associated with the first antenna AT1 and the second antenna AT2, there is no *unique* association of the channelization code  $W_1$  with the first or second antenna as claimed.

The Examiner's stated position (Ans. 8), however, asserts the obviousness to the ordinarily skilled artisan of reducing the number of

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<sup>3</sup> The Examiner's stated position equates the weighing factors  $W_1$  and  $W_2$  disclosed by Dabak '473 with the claimed spreading channelization codes. Appellants' arguments of record do not dispute this interpretation.

transmitting antennas in Dabak '473 from four to two, thereby resulting in a system where each of the weighting channelization codes  $W_1$  and  $W_2$  would be *uniquely* associated with the first and second antennas. As with our previous discussion with respect to claim 1, we find, with no arguments to the contrary from Appellants, that the Examiner has set forth an articulated line of reasoning with a rational underpinning establishing the obviousness to the ordinarily skilled artisan of reducing processing time delay in the processing of data symbols by simplifying the diversity antenna system of Dabak '473 by reducing the number of transmitting antennas.

We also make the observation that, although not referenced by the Examiner, the Figure 1 “prior art” embodiment disclosed by Dabak '473 illustrates a system in which a symbol data field  $S_1$  is spread using first and second weighting channelization codes  $W_1$  and  $W_2$  with the resulting spread data fields  $W_1S_1$  and  $W_2S_1$  being applied to, and uniquely associated with, respectively, first and second antennas  $A12_1$  and  $A12_2$ . Accordingly, we find that system illustrated in Figure 1 of Dabak '473, which discloses all the requirements of appealed claim 13, buttresses the Examiner’s conclusion of obviousness based on the Dabak '473 reference.

*IV. The 35 U.S.C. § 103(a) rejection of dependent claim 14 based on the combination of Dabak '473 and Akiba.*

As with our previous discussion of dependent claims 2-4, we find no error in the Examiner’s application (Ans. 7, 10) of the scrambling code teachings of Akiba to the multiple antennas transmitting system of Dabak '473. Appellants’ arguments (App. Br. 8) rely on those made with respect to independent claim 13, which arguments we have found to be unpersuasive.

Accordingly, the Examiner's obviousness rejection of dependent claim 14 is sustained.

*V. Nonstatutory Obviousness-type Double Patenting Rejection.*

As Appellants have presented no arguments against this rejection in their Brief, we sustain *pro forma* the Examiner's obviousness-type double patenting rejection of claims 1-4, 13, and 14 over claims 1-4, 13, and 14 of both copending application Serial Nos. 10/071,903 and 10/079,107. At page 5 of the Brief, Appellants have expressed on the record their willingness to file a terminal disclaimer to overcome the obviousness-type double patenting rejection.

CONCLUSION OF LAW

Based on the findings of facts and analysis above, we conclude that, with respect to all of the appealed claims 1-4, 13, and 14, Appellants have not shown that the Examiner erred in making the obviousness rejection under 35 U.S.C. § 103 as well as the obviousness-type double patenting rejection based on the claims of copending application Serial Nos. 10/071,903 and 10/079,107.

DECISION

The Examiner's rejection of claims 1-4, 13, and 14, all of the appealed claims, is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

Appeal 2009-006389  
Application 10/071,917

AFFIRMED

babc

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